

to keep it all fluid caused a quicker action on the crucible,, whicl
was soon eaten through, and the
experiment stopped.

534. In one experiment of this kind I
used borate of **leetc**
(144,, 408). It evolves lead, under the
influence of the elect:ri<
current,, at the *anode*, and oxygen at the
cathode; and as th<
boracic acid is not either directly (144) or
incidentally decorn.

posed during the operation,, I expected a
result dependent 01
the oxide of lead. The borate is not so
violent a flux as "tli<
oxide, but it requires a higher
temperature to make it quit
liquid; and if not very hot, the bubbles of
oxygen cling to **tli**
positive electrode, and retard the
transfer of electricity. **Tli<**

number for lead came out 101.29, which
is so near to 103.5 a
to show that the action of the current had
been definite.

535. *Oxide of bismuth*.—I found this
substance required to<
high a temperature, and acted too
powerfully as a flux, to **allo'v**
of any experiment being made on it,
without the application, o
more time and. care than I could give at
present.

536. The ordinary *protoxide of antimony*,
which consists o
one proportional of metal and one and a
half of oxygen, **wa**
subjected to the action of the electric
current in a green-gla-s
tube (524), surrounded by a jacket of
platina foil, and hea/te<
in a charcoal fire. The decomposition
began and proceede<
very well at first, apparently
indicating, according to "th.
general law (414, 432), that this
substance was one containln.

such elements and in such proportions as
made it amenable t
the power of the electric current. This
effect I have alreact;
given reasons for supposing may be due
to the presence of
true protoxide, consisting of single
proportionals (431, 4.28

The action soon diminished, and finally
ceased, because of "tb
formation of a higher oxide of the metal
at the positive **elec**

trode. This compound, which was
probably the peroxide, **bein**
infusible and insoluble in the protoxide,
formed a crystalln
crust around the positive electrode;
and thus insulating i
prevented the transmission of the
electricity. Whether, if :

had been fusible and still immiscible, it
would have decomposec
is doubtful, because of its departure from
the required compos
tion (432). It was a very natural
secondary product at "fcr

positive electrode (514). On opening
the tube it was found this
a little antimony had been separated at
the negative electrode
but the quantity was too small to allow
of any quantitative
result being obtained.¹

¹This paragraph is subject to the corrective note now
appended
paragraph 431.—December 1838.